

Today's Learning Goal(s):

Date: Sept. 11/19
(Every lesson)

By the end of the class, I will be able to:

- a) add or subtract rational expressions and state any restrictions.

2.7 Adding and Subtracting Rational Expressions Day 1

Ex.1 Simplify. State any restrictions on the variables.

a) $\frac{5}{6} + \frac{3}{4}$ LCD = 12

$$= \frac{5 \cdot 2}{6 \cdot 2} + \frac{3 \cdot 3}{4 \cdot 3}$$

$$= \frac{10}{12} + \frac{9}{12}$$

$$= \frac{10+9}{12}$$

$$= \frac{19}{12}$$

b) $\frac{1}{3x} + \frac{3}{4y}$ LCD = 12xy

$$= \frac{1 \cdot 4y}{3x \cdot 4y} + \frac{3 \cdot 3x}{4y \cdot 3x}$$

$$= \frac{4y}{12xy} + \frac{9x}{12xy}$$

$$= \frac{4y+9x}{12xy}$$

R: $x \neq 0, y \neq 0$

Don't forget restrictions!

c) $\frac{1}{6x^2} - \frac{3}{8y} + \frac{5}{4xy}$ LCD = $24x^2y$

$$= \frac{1(4y)}{24x^2y} - \frac{3(3x^2)}{24x^2y} + \frac{5(6x)}{24x^2y}$$

$$= \frac{4y - 9x^2 + 30x}{24x^2y}$$

R: $x \neq 0, y \neq 0$

d) $\frac{5}{x-2} - \frac{3}{x+3}$ LCD = $(x-2)(x+3)$

$$= \frac{5(x+3)}{(x-2)(x+3)} - \frac{3(x-2)}{(x+3)(x-2)}$$

$$= \frac{5x+15 - 3x+6}{(x-2)(x+3)}$$

$$= \frac{2x+21}{(x-2)(x+3)}$$

R: $x \neq 2$
 $x \neq -3$

Simplify.  State any restrictions on the variables.

$$e) \frac{5}{4a-2} - \frac{7}{6a-3}$$

$$= \frac{5}{2(2a-1)} - \frac{7}{3(2a-1)} \quad \text{LCD} = 6(2a-1)$$

$$= \frac{5(3)}{6(2a-1)} - \frac{7(2)}{6(2a-1)}$$

$$= \frac{15 - 14}{6(2a-1)}$$

$$= \frac{1}{6(2a-1)}$$

$$R: \begin{array}{l} 2a-1 \neq 0 \\ 2a \neq 1 \\ a \neq \frac{1}{2} \end{array}$$

Are there any Homework Questions you would like to see on the board?

Last day's work: pp. 122-123 #(4-7)ac, 8, 9, 11 [13]

Today's Homework Practice includes:

READ pp.124-127

p. 128 #1 - 5

7c a

4c

6c

p. 122 4. Simplify. State any restrictions on the variables.

a) $\frac{2x^2}{7} \times \frac{21}{x}$

c) $\frac{2x^3y}{xy^2} \times \frac{3x}{4x^2y}$

R: $x \neq 0, y \neq 0$

$$= \frac{3}{2} x^{3+1-1-2} y^{1-2-1}$$

$$= \frac{3}{2} x^1 y^{-2}$$

$$= \frac{3x}{2y^2}$$

6 c) $\frac{2x^2 - x - 1}{x^2 - x - 6} \times \frac{6x^2 - 5x + 1}{8x^2 + 14x + 5}$

$$= \frac{(\cancel{2x+1})(x-1)}{(x-3)(x+2)} \times \frac{(3x-1)(2x-1)}{(4x+5)(\cancel{2x+1})}$$

$$= \frac{(x-1)(3x-1)(2x-1)}{(x-3)(x+2)(4x+5)} \quad R: x \neq 3, -2, -\frac{5}{4}, -\frac{1}{2}$$

p. 122

7. Simplify. State any restrictions on the variables.

$$\text{a) } \frac{x^2 - 5xy + 4y^2}{x^2 + 3xy - 28y^2} \times \frac{x^2 + 2xy + y^2}{x^2 - y^2}$$

$$= \frac{(x-4y)(x-y)}{(x-4y)(x+7y)} \times \frac{(x+y)(x+y)}{(x+y)(x-y)}$$

$$= \frac{x+y}{x+7y}$$

$$R: x \neq 4y, -7y, \pm y$$

$$\text{c) } \frac{10x^2 + 3xy - y^2}{9x^2 - y^2} \div \frac{6x^2 + 3xy}{12x + 4y}$$

$$= \frac{(5x-y)(2x+y)}{(3x-y)(3x+y)} \div \frac{3x(2x+y)}{4(3x+y)}$$

$$= \frac{(5x-y)(2x+y)}{(3x-y)(3x+y)} \times \frac{4(3x+y)}{3x(2x+y)}$$

$$= \frac{4(5x-y)}{3(3x-y)}$$

$$R: y \neq \pm 3x, -2x, x \neq 0$$